

CALPINE CORPORATION

1200 ARCY LANE P.O. BOX 551 PITTSBURG, CA 94565

April 21, 2017

Director of Compliance and Enforcement Division Bay Area Air Quality Management District, Suite 600 375 Beale Street San Francisco, CA 94105-2066

Re: Delta Energy Center Facility B2095

Title V Semi-Annual Continuous Emission Monitoring Report Reporting Period: October 1, 2016 through March 31, 2017

Attn: Title V Reports

Enclosed is the Title V <u>Semi-Annual Continuous Emissions Monitoring Report</u> for the Delta Energy Center (DEC) for the reporting period from October 1, 2016 through March 31, 2017.

DEC is currently in compliance with District CEMS regulations. There were no excess emissions or Notices of Violation (NOVs) issued to DEC during this period.

If you have any questions, please contact Dale Donmoyer, General Manager (925) 252-2096 or Maria Barroso, EHS Specialist at (925) 529-8286.

As the Responsible Official, I certify that based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

Maria Barroso for Dale Donmoyer

Sincerely,

Dale Donmoyer

Authorized Signatory and General Manager

Attachment

ce: Mr. Joseph Douglas, California Energy Commission

Table VII – A Applicable Limits and Compliance Monitoring Requirements S-1, S-3, S-5 TURBINES S-2, S-4, S-6 HEAT RECOVERY STEAM GENERATORS

			Future		Monitoring	Monitoring		Comp	oliance
Type of	Citation of	FE	Effective		Requirement	Frequency	Monitoring	Yes	No
Limit	Limit	Y/N	Date	Limit	Citation	(P/C/N)	Туре		
NO _x	BAAQMD	N		125 ppm	BAAQMD	С	CEM	X	
	9-3-303				1-520.1				
	BAAQMD	N		0.15 lb/MW-hr or 5 ppmv	BAAQMD	С	CEM	Х	
	9-9-301.2				9-9-501				
NO_x	SIP	N		9 ppmv @ 15% O ₂ , dry	SIP	С	СЕМ	X	
	9-9-301.3				9-9-501				
	NSPS, 40	Y		0.2 lb/MMBtu, 30-day	40 CFR	С	CEM	X	
	CFR 60.44			rolling average	60.48 (b) and	· 			
	(a)(4)				BAAQMD				
į			j		condition				
		}			#17154				
NO _x	NSPS, 40	Υ		75 ppmv, @ 15% O ₂ , dry	40 CFR	С	CEM	Х	
	CFR 60.332				60.334(c) and				
	(a)(1)				BAAQMD				
		İ			Confition				
ı		ŀ			17154, Part				
		ļ			39b				l
		Y		None	40 CFR 75.10	С	CEM	Х	
NO _x	BAAQMD	Y		19.2 lb/hr, for each turbine	BAAQMD	С	CEM	Х	 -
	condition			and HRSG combined,	condition				
	#17154,			except during turbine	#17154,				
	part 22a			startup, shutdown, steam	part 39b				
		-	ļ	turbine cold start-up, or	ļ			ļ	
		İ		combustor tuning period					
NO _x	BAAQMD	Y		19.2 lb/hr, for each turbine	BAAQMD	P/A	Source test	Х	
	condition		ļ	and HRSG combined,	condition		at maximum		
	#17154.			except during turbine	#17154,		load		
	part 22a		ļ	startup, shutdown, steam	part 43	į			
	_	l	Į	turbine cold start-up, or					
				combustor tuning period]	

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			Future		Monitoring	Monitoring		Com	pliance
Type of	Citation of	FE	Effective		Requirement	Frequency	Monitoring	Yes	No
Limit	Limit	Y/N	Date	Limit	Citation	(P/C/N)	Туре		
NO _x	BAAQMD	Y		0.00904 lb/MM BTU, for	BAAQMD	С	CEM	X	
	condition			each turbine and HRSG	condition	,			
	#17154,			combined, except during	#17154,				
	part 22a			turbine startup, shutdown,	part 39b				
		-		steam turbine cold start-up,					
				or combustor tuning period					ļ <u> </u>
NO _x	BAAQMD	Y		0.00904 lb/MM BTU, for	BAAQMD	P/A	Source test	Х	
	condition			each turbine and HRSG	condition		at maximum		
	#17154,			combined, except during	#17154,		load		
	part 22a			turbine startup, shutdown,	part 43				İ
				steam turbine cold start-up,			ĺ		
				or combustor tuning period					
NO _x	BAAQMD	Y		2.5 ppmv, @ 15% O ₂ , dry,	BAAQMD	P/A	Source test	X	
	condition			for each turbine and HRSG	condition		at maximum		
	#17154,	ļ		combined, 1-hr average	#17154,		load		
]	part 22b			except during turbine	part 43				
				startup, shutdown, steam			,		
				turbine cold start-up, or					
				combustor tuning period					
NO _x	BAAQMD	Y		2.5 ppmv, @ 15% O ₂ , dry,	BAAQMD	С	СЕМ	X	
	condition			for each turbine and HRSG	condition				
	#17154,			combined, 1-hr average	#17154,	1			
	part 22b			except during turbine	part 39b				
			i	startup, shutdown, steam			-		
]				turbine cold start-up, or					
				combustor tuning period					
NO _x	BAAQMD	Y		240 lb/turbine during	BAAQMD	С	CEM	X	
	condition			start-up	condition				
	#17154,				#17154,			:	
	part 23				part 39b				
	BAAQMD	Y		80 lb/turbine during	BAAQMD	С	CEM	X	
	condition			shutdown	condition				
	#17154,				#17154,		ŀ		
	part 23				part 39b				
	BAAQMD	Υ		300 lb/turbine during steam	BAAQMD	С	CEM	X	
	condition			turbine cold start-up or	condition				
	#17154,			combustor tuning period	#17154,		1		
	part 23				part 39b				

			Future		Monitoring	Monitoring		Com	pliance
Type of	Citation of	FE	Effective		Requirement	Frequency	Monitoring	Yes	No
Limit	Limit	Y/N	Date	Limit	Citation	(P/C/N)	Туре	1 63	140
NO_x	BAAQMD	Y		1990.8 lb/day for turbines	BAAQMD	С	CEM	Х	
	condition			and HRSGs combined	condition				
	#17154.			, i	#17154,		ĺ		
	part 36a				part 39b				
	BAAQMD	Y		240.2 ton/yr for turbines	BAAQMD	С	CEM	х	
	condition			and HRSGs combined	condition			}	
	#17154,				#17154,				
	part 37a				part 39b				
СО	BAAQMD	Y		46.75 lb/hr, for each turbine	BAAQMD	P/A	Source test	Х	
	condition		ı	and HRSG combined,	condition		at maximum		
	#17154,			except during turbine	#17154,		and		
	part 22c			startup, shutdown, steam	part 43		minimum		
į				turbine cold start-up, or	1		load	•	
				combustor tuning period					
СО	BAAQMD	Y		46.75 lb/hr, for each turbine	BAAQMD	С	СЕМ	Х	
	condition			and HRSG combined,	condition				
	#17154,			except during turbine	#17154,				
	part 22c			startup, shutdown, steam	part 39b				
	*			turbine cold start-up, or	}				
				combustor tuning period					
	BAAQMD	Y		0.022 lb/MM BTU, for each	BAAQMD	P/A	Source test	Х	
	condition			turbine and HRSG	condition		at maximum		
	#17154,			combined, except during	#17154,		and		
	part 22c	ĺ		turbine startup, shutdown,	part 43		minimum		
	-	- 1		steam turbine cold start-up,			load		
				or combustor tuning period		ŀ			
	BAAQMD	Y		0.022 lb/MM BTU, for each	BAAQMD	С	СЕМ	Х	
1	condition	1		turbine and HRSG	condition				
	#17154,			combined, except during	#17154,			1	
ļ	part 22c		Ī	turbine startup, shutdown,	part 39b		İ		
				steam turbine cold start-up,		ŀ			
ļ		ŀ	1	or combustor tuning period					
СО	BAAQMD	Y		10 ppmv, @ 15% O ₂ , dry,	BAAQMD	С	СЕМ	Х	
	condition		ļ	for each turbine and HRSG	condition				
	#17154,	- [ļ	combined, 3-hr average	#17154,	ļ			
	part 22d		!	except during turbine	part 39b				
	•			startup, shutdown, steam			1		
		-		turbine cold start-up, or					
-				combustor tuning period					

			Future		Monitoring	Monitoring		Com	pliance
Type of	Citation of	FE	Effective		Requirement	Frequency	Monitoring	Yes	No
Limit	Limit	Y/N	Date	Limit	Citation	(P/C/N)	Туре		
со	BAAQMD	Y		10 ppmv, @ 15% O ₂ , dry,	BAAQMD	P/A	Source test	X	
	condition			for each turbine and HRSG	condition		at maximum		
	#17154,			combined, 3-hr average	#17154,		and		
	part 22d			except during turbine	part 43		minimum		
				startup, shutdown, steam			load		
				turbine cold start-up, or	Ĭ.	•			
				combustor tuning period					
со	BAAQMD	Y		2514 lb/turbine during	BAAQMD	С	CEM	X	
	condition			start-up	condition	'	·		
	#17154,				#17154,				
	part 23				part 39b				
CO	BAAQMD	Y		902 lb/turbine during	BAAQMD	С	CEM	Χ	}
	condition			shutdown	condition				
į	#17154,			•	#17154,				
	part 23				part 39b				
	BAAQMD	Y		9,750 lb/turbine during	BAAQMD	С	СЕМ	X	
	condition			steam turbine cold start-up	condition	Ï			
	#17154.			or combustor tuning period	#17154,				
	part 23	_	·		part 39b				
co	BAAQMD	Y		12,756.4 lb/day for turbines	BAAQMD	С	СЕМ	X	
	condition			and HRSGs combined	condition				
	#17154,				#17154,	ĺ			
	part 36b				part 39b			 	
co	BAAQMD	Y		1,105.4 ton/yr for turbines	BAAQMD	С	CEM	X	
	condition			and HRSGs combined	condition				
	#17154,				#17154,				
	part 37b				part 39b				
CO ₂		Y		None	40 CFR 75.10	С	fuel flow	X	
							monitor and		
							CO ₂		
							calculation		
SO ₂	BAAQMD	Y		GLC ¹ of 0.5 ppm for 3 min		N		N/A	
	9-1-301			or 0.25 ppm for 60 min or					
				0.05 ppm for 24 hours	,			<u></u>	
	BAAQMD	Y		300 ppm (dry)		N		N/A	
	9-1-302								·
	NSPS 40			0.2 lb/MMBtu, 24 hr		N		N/A	
l l	CFR 60.43a		İ	average except during	}	Ì	}	•	
	(b)(2)			startup, shutdown	}				

			Future		Monitoring	Monitoring		Com	pliance
Type of	Citation of	FE	Effective		Requirement	Frequency	Monitoring	Yes	No
Limit	Limit	Y/N	Date	Limit_	Citation	(P/C/N)	Type	1 63	
SO ₂	NSPS	Y		0.015% (vol) @ 15% O ₂	NSPS 40	P/M	Fuel sulfur	Х	
	40 CFR	[(dry) or total sulfur content	CFR 60.334		content		
	60.333			of fuel less than or equal to	(h) (3) (ii)	!	testing		
				0.8% sulfur by weight	and				
				(8,000 ppmw)	BAAQMD				
					Condition				
					17154, Part				
				,	57				
					40 CPD			***	
SO ₂		Y		None	40 CFR		Fuel	X	
					75.11, 40		measure-		
			İ		CFR 75,		ments, calculations		
					Appendix D,		calculations		!
	DAAOMD	Y		Fuel sulfur content of 1.0	part 2.3	P/M	Fuel testing	X	
	BAAQMD condition	i	}	gr/100 scf	BAAQMD condition	P/IVI	ruci lesting	Λ.	
	#17154,			gi/100 SCI	#17154, part		ļ		
	part 14				'57		İ		
	BAAQMD	Y	·	18.42 ton/yr for turbines	BAAQMD	P/D	Fuel sulfur	X	
	condition	• 1		and HRSGs combined	condition	1,0	content	Λ.	
	#17154,	ĺ		and mayos comomos	#17154,		testing,		
	part 37e		İ		part 40		natural gas		}
	parisite				pano io		usage		
							records,		
			İ		ŀ		calculations		
Opacity	ВАЛОМО	N		> Ringelmann No. 1 for no		N		N/A	_
7,	6-1-301		l	more than 3 minutes in any					l
		ļ	İ	hour	ĺ	1			
Opacity	SIP	Y		> Ringelmann No. 1 for no		N		N/A	
	6-301	- 1		more than 3 minutes in any					
]		Ì	hour					
FP	BAAQMD	N		0.15 grain/dscf		N		N/A	
	6-1-310								
FP	SIP	Y		0.15 grain/dscf		N		N/A	-
	6-310								
	BAAQMD	И		0.15 grain/dscf @ 6% O ₂		N		N/A	
	6-1-310.3								
	SIP	Y		0.15 grain/dscf @ 6% O ₂		N		N/A	
	6-310.3								

			Future		Monitoring	Monitoring		Com	pliance
Type of	Citation of	FE	Effective		Requirement	Frequency	Monitoring	Yes	No
Limit	Limit	Y/N	Date	Limit	Citation	(P/C/N)	Type		110
Opacity	BAAQMD	N		During tube cleaning,		N ·		N/A	
	6-1-304			Ringelmann No. 2 for 3					
				min/hr and 6 min/billion			.		
				btu/24 hours					
Opacity	SIP 6-304	Y		During tube cleaning,		N		N/A	
				Ringelmann No. 2 for 3					
				min/hr and 6 min/billion					
				btu/24 hours					
PM ₁₀	BAAQMD	Y		9.0 lb/hr, for each turbine	BAAQMD	P/A	Source test	Х	
	condition			and HRSG combined	condition		at maximum		
	#17154,				#17154,	•	load		
	part 22h				part 43				
PM ₁₀	BAAQMD	Y		0.00424 lb/MM BTU, for	BAAQMD	P/A	Source test	X	
	condition			each turbine and HRSG	condition	•	at maximum		İ
	#17154,			combined	#17154,		load		Ì
	part 22h				part 43				
PM ₁₀	BAAQMD	Y		648 lb/day for turbines and	BAAQMD	P/D	Records,	Х	
	condition			HRSGs combined	condition		calculations		
	#17154,				#17154,				
	part 36d				part 40				
	BAAQMD	Υ		118.26 ton/yr for turbines	BAAQMD	P/D	Records,	Х	
	condition			and HRSGs combined	condition		calculations		
	#17154,				#17154,				
	part 37d				part 40				
POC	BAAQMD	Y		5.33 lb/hr (as CH4) for each	BAAQMD	P/A	Source test	X	
	condition	ļ		turbine, and HRSG	condition		at maximum		
	#17154,			combined except during	#17154,		load .		
	part 22f			turbine startup, shutdown,	part 43				
				steam turbine cold start-up,					
				or combustor tuning period				·	
POC	BAAQMD	Y		0.00251 lb/MM BTU (as	BAAQMD	P/A	Source test	Х	
	condition			CH4) for each turbine, and	condition		at maximum		
	#17154,			HRSG combined except	#17154,		load		
	part 22f			during turbine startup,	part 43				
		ł		shutdown, steam turbine					
				cold start-up, or combustor					li
				tuning period					

			Future		Monitoring	Monitoring	1	Com	pliance
Type of	Citation of	FE	Effective		Requirement	Frequency	Monitoring	Yes	No
Limit	Limit	Y/N	Date	Limit	Citation	(P/C/N)	Type		ļ
	BAAQMD	Y		48 lb/turbine during	BAAQMD	P/ID	Records,	Х	Ì
	condition			start-up	condition		calculations		
	#17154				#17154,				
	part 23		ļ		part 40			.	ļ
POC	BAAQMD	Y	<u> </u>	16 lb/turbine during	BAAQMD	P/D	Records,	X	
	condition			shutdown	condition		calculations		
	#17154,				#17154,				
	part 23				part 40				
	BAAQMD	Y	 	96 lb/turbine during	BAAQMD	P/D	Records,	X	
	condition			steam turbine cold start-up	condition		calculations		
	#17154,			or combustor tuning period	#17154,				
	part 23				part 40				
	BAAQMD	Y		478.2 lb/day (as CH4) for	BAAQMD	P/D	Records,	Х	
	condition			turbines and HRSGs	condition		calculations		
	#17154,			combined	#17154,		1		
	part 36c				part 40				
POC	BAAQMD	Y		64.68 ton/yr for turbines	BAAQMD	P/D	Records,	Х	
	condition			and HRSGs combined	condition		calculations	I	
	#17154,				#17154,				
	part 37c			ļ	part 40				
NH ₃	BAAQMD	N		10 ppmv, @ 15% O ₂ , dry,	BAAQMD	С	Ammonia	X	
	condition	İ		averaged over 3 hrs for	condition		injection		
	#17154,			each turbine and HRSG	#17154,		rate monitor		
1	Part 22e	ļ		combined except during	part 39c				
		Ì		turbine startup, shutdown,		ļ			
	•			steam turbine cold start-up,					
				or combustor tuning period			1		
Formal-	BAAQMD	N		5691 lb/yr for turbine and	BAAQMD	P/D	Records,	Х	
dehyde	condition	1		HRSGs combined	condition		calculations		
•	#17154,	ŀ			#17154,				
	part 38a				part 41				1
Formal-	BAAQMD	N		5691 lb/yr for turbine and	BAAQMD	P/every two	Source test	х	
dehyde	condition			HRSGs combined	condition	years on P-			
,	#17154,				#17154,	1, P-2, or		İ	
	part 34a				part 44	P-3			
Benzene	BAAQMD	N		704 lb/yr for turbines,	BAAQMD	P/D	Records,	Х	
	condition		.	HRSGs, and auxiliary	condition		calculations	}	
	#17154,		ľ	boiler combined	#17154,				
	part 38b			33	part 41				

			Future	1	Monitoring	Monitoring		Comp	oliance
Type of	Citation of	FE	Effective		Requirement	Frequency	Monitoring	Yes	No
Limit	Limit	Y/N	Date	Limit	Citation	(P/C/N)	Туре		
	BAAQMD	N		704 lb/yr for turbines and	BAAQMD	P/every two	Source test	X	
	condition			HRSGs combined	condition	years on P-	•		
	#17154,				#17154,	l, P-2, or			
	part 38b				part 45	P-3			
Specified	BAAQMD	N		120 lb/yr for turbines,	BAAQMD	P/D	Records,	X	
PAH's	condition			HRSGs, and auxiliary	condition		calculations		
	#17154,			boiler combined	#17154,	,			
	Part 38c				part 41				
	BAAQMD	N		120 lb/yr for turbines and	- BAAQMD	P/every two	Source test	X	
	condition			HRSGs combined	condition	years on P-			
·	#17154,				#17154,	1, P-2, or			
	Part 38c				part 41	P-3			
Heat		Y		None	40 CFR 75.10	С	Fuel meter,	X	
input							firing		
limit							monitor,		
				•			calculations		
Heat	BAAQMD	Y		2,125 MM BTU/hr (HHV),	BAAQMD	С	Fuel meter,	Х	
input	condition			3-hr average for each	condition		firing		
limit	#17154,			Turbine and HRSG, total	#17154,		monitor,		
	part 15				part 39a		calculations		
	BAAQMD	Y		50,024 MM BTU/calendar	BAAQMD	С	fuel meter,	Х	
	condition			day (HHV), for each	condition		firing		
	#17154,			Turbine and HRSG, total	#17154,		monitor,		
	part 16				part 39a		calculations		
Heat	BAAQMD	Y		53,188,532 MM BTU/yr	BAAQMD	С	fuel meter,	Х	
Input	condition			(HHV) for S-1, S-3, S-5,	condition		firing		
Limit	#17154,			Turbines and S-2, S-4, S-6	#17154,		monitor,		
;	part 17			HRSGs combined	part 39a		calculations		
Steam	BAAQMD	Y		30 hours per year per	BAAQMD	P/H	records	X	7
turbine	condition			turbine	condition				
cold start-	#17154,				#17154,	İ			
up or	part 24				part 62				
combus-	-						•	ļ	
tor tuning									

Table VII – B Applicable Limits and Compliance Monitoring Requirements S-9, COOLING TOWER

Type of	Citation of	FE	Future Effecti	Effecti Re	Monitoring Requirement	Monitoring Frequency	Monitoring	Con	npliance
Limit	Limit	Y/N	ve Date	Limit	Citation	(P/C/N)	Туре	Yes	No
Opacity	BAAQMD 6-1-301	N		> Ringelmann 1.0 for no more than 3 minutes in any hour		N		N/A	
Opacity	SIP 6-301	Y		> Ringelmann 1.0 for no more than 3 minutes in any hour		N		N/A	•
FP	BAAQMD Regulation 6-1-310	N		0.15 gr/dscf		N		N/A	
FP	SIP Regulation 6-310	Y		0.15 gr/dscf	•	N		N/A	
Drift Rate	BAAQMD condition #17154, part 58	Y		0.0005%	BAAQMD condition #17154, part 59	Р	Initial source test	х	
Total Dissolved Solids	BAAQMD condition #17154, part 58	Y		5233 ppmw (mg/l)	BAAQMD condition #17154, part 58	P/D	Sampling and testing of cooling tower water	Х	

Table VII – C Applicable Limits and Compliance Monitoring Requirements S-10, FIRE PUMP DIESEL ENGINE

T f	Citation of	FE	Future Effective		Monitoring	Monitoring	Monitoring	Cor	npliance
Type of Limit	Limit	Y/N	Date	Limit	Requirement Citation	Frequency (P/C/N)	Type	Yes	No
Opacity	BAAQMD Regulation 6-303.1	N		Ringelmann 2.0 for 3 minutes in any hour	·	N		N/A	
Opacity	SIP Regulation 6-303.1	Y		Ringelmann 2.0 for 3 minutes in any hour		N	` .	N/A	
FP	SIP Regulation 6-310	Y		0.15 gr/dscf		N		N/A	
FP	BAAQMD Regulation 6-1-310	N	-	0.15 gr/dscf		N		N/A	
SO ₂	BAAQMD 9-1-301	Y		GLC of 0.5 ppm for 3 min. or 0.25 ppm for 60 min. or 0.05 ppm for 24 hours		И		N/A	
SO ₂	BAAQMD 9-1-304	Y		Sulfur Content <0.5% by weight		N		N/A	
Reliability Related Hours	BAAQMD 9-8-330	И	1/1/12	100 hours until 1/1/12 50 hours after 1/1/12	9-8-502 9-8-530	P/E	Totalizing meter record keeping	х	
Reliability Related Hours	BAAQMD Condition #22851, part 1	N		34 hours per calendar year	BAAQMD Condition #22851, part 3, 4	P/E	Totalizing meter record keeping	х	

Table VII – D Applicable Limits and Compliance Monitoring Requirements S-11, NATURAL GAS FIRED EMERGENCY GENERATOR

Type of	Citation of	FE	Future Effecti		Monitoring Requirement	Monitoring Frequency	Monitoring	Cor	npliance
Limit	Limit	Y/N	ve Date	Limit	Citation	(P/C/N)	Туре	Yes	No
Opacity	BAAQMD 6-1-303.1	N		< Ringelmann 2.0, except for no more than 3 minutes in any hour		N		N/A	
Opacity	SIP 6-303.1	Y		< Ringelmann 2.0, except for no more than 3 minutes in any hour		N		N/A	
FP	BAAQMD Regulation 6-1-310	N		0.15 gr/dscf	•	Ŋ		N/A	
FP	SIP Regulation 6-310	Y		0.15 gr/dscf		N		N/A	
SO ₂	BAAQMD Regulation 9-1-301	Y		GLC of 0.5 ppm for 3 min. or 0.25 ppm for 60 min. or 0.05 ppm for 24 hours		N		N/A	
SO ₂	BAAQMD Regulation 9-1-302	Y		300 ppm (dry)		N		N/A	
Reliability Related Hours	BAAQMD 9-8-330	N	1/1/12	100 hours until 1/1/12 50 hours after 1/1/12	9-8-502	P/E	Totalizing meter record keeping	X	
Reliability Related Hours	BAAQMD Condition #21609, part I	Y		100 hours per calendar year	BAAQMD Condition #22231, part 2 and 3	P/E	Record keeping	Х	